



Synchronous Fireflies at Elkmont



Photo by Bill Lea

A Local Discovery Synchronous fireflies are uncommon in North America. They were not well known until 1994, when a Knoxville resident told a scientist she had watched the firefly “light show” in the Elkmont area of Great Smoky Mountains National Park for over 40 years. Dr. Jonathan Copeland, a Georgia Southern University professor who had been studying synchronous fireflies in Southeast Asia, was amazed to find them so close to home. Peak viewing is normally within a two-week period in mid-June.

The Lives of Fireflies Fireflies (also called lightning bugs) are really beetles. They take from one to two years to mature from larvae, but will live as adults for only about 21 days. Their light patterns are part of the adulthood mating display. Each species of firefly has a characteristic flash pattern that helps its male and female individuals recognize each other. Most species produce a greenish-yellow light; one species has a bluish light. The males fly and flash and the usually stationary females respond with a flash.

Bioluminescence The production of light by living organisms is called bioluminescence. Many species of insects and marine creatures are capable of it. Fireflies combine the chemical luciferin and oxygen with the enzyme luciferase in their lanterns (part of their abdomens) to make light. This chemical reaction is very efficient and produces little or no heat.

Great Smoky Synchrony Synchronous fireflies (*Photinus carolinus*) are one of 14 species of fireflies at Great Smoky Mountains National Park. They are the only species in the Americas whose individuals can synchronize their flashing light patterns. No one is sure why the fireflies flash synchronously. Competition between males may be one reason: they all want to be the first to flash. Or perhaps if the males all flash together, they have a better chance of being noticed, and the females can make better comparisons. The fireflies do not always flash in unison. They may flash in waves across hillsides, and at other times will flash randomly. Synchrony occurs in short bursts that end with abrupt periods of darkness.

Elkmont Elkmont was once a logging town and a resort community, but is now part of Great Smoky Mountains National Park. Though Elkmont is the only known public area where you can easily watch synchronous fireflies, the historic houses and other structures are unsafe and off-limits to the public. If you help the national park protect Elkmont, you’ll have an opportunity to make your own rare discoveries.

Light Show Etiquette 8,500 people visited Elkmont during a two-week period in 2004 to see “the light show.” Please be courteous to the fireflies and to the thousands of other people who came to see them.

Flashlights disrupt the fireflies and impair people’s night vision. The light show is best when you:

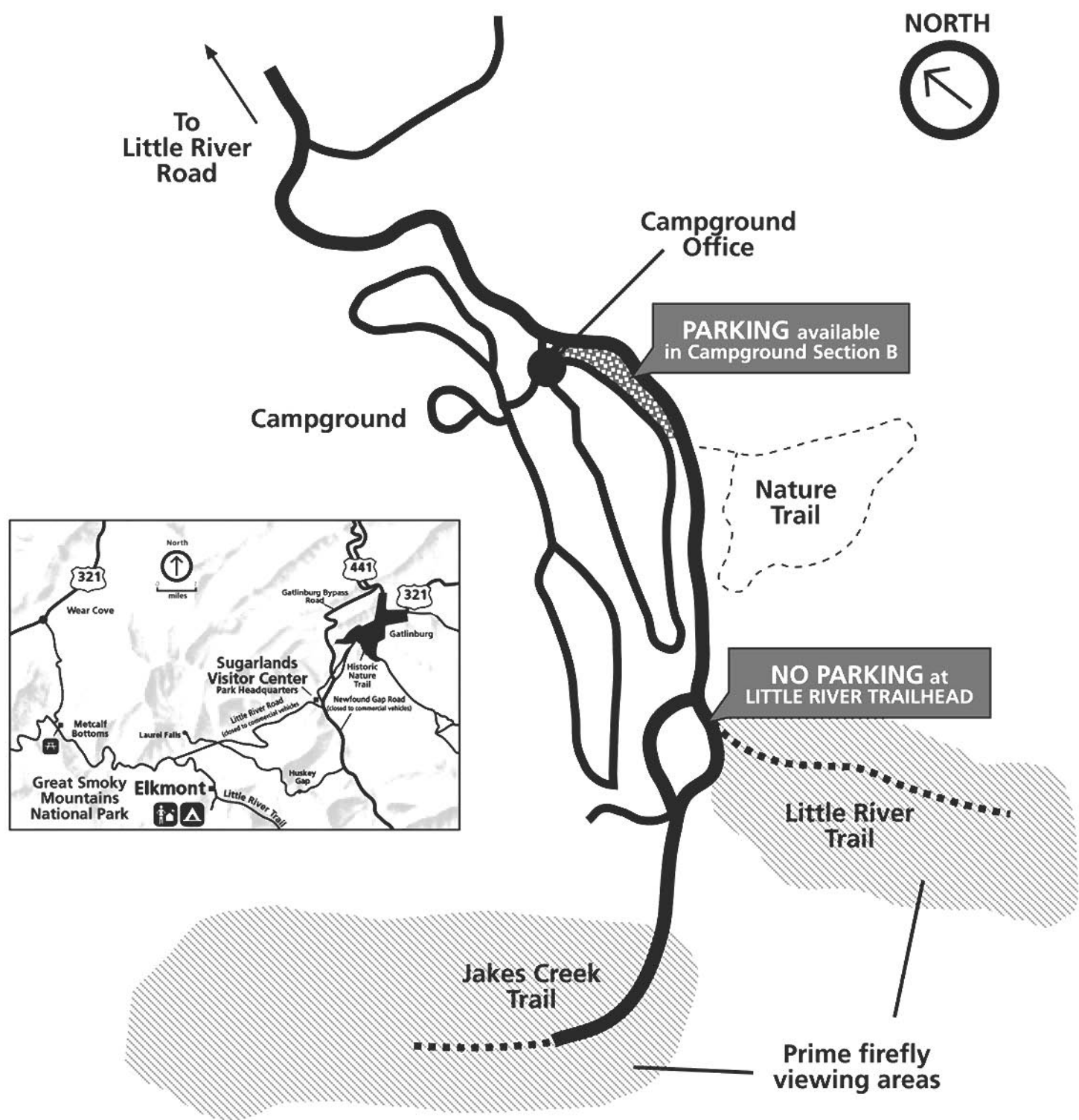
- Cover your flashlight with red or blue cellophane. Free blue cellophane and rubber bands are provided during the event by national park staff and volunteers.
- Use your flashlight only when walking to your viewing spot.
- Point your flashlight at the ground.
- Turn off your flashlight when you find your viewing spot.

You can also help protect the fireflies and their habitat:

- Do not catch the fireflies.
- Stay on the trail at all times.
- Pack out all of your garbage.

Firefly Viewing in the Elkmont Campground Area

Parking is limited. Please carpool, or better yet, ride the Gatlinburg trolley to Elkmont. Parking for the trolley is available at Sugarlands Visitor Center. Call (865) 436-1291 for schedule information.



Learn More

To learn more about the synchronous fireflies of the Great Smoky Mountains, visit the park’s website at <http://www.nps.gov/grsm>

For details about interpretive programs, parking, and public transportation opportunities, call (865) 436-1291.